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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/965,881	09/28/2001	Dieter Schulz	481340010039	3493

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EXAMINER

SINGH, RAMNANDAN P

ART UNIT	PAPER NUMBER
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2644

DATE MAILED: 06/07/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/965,881

Applicant(s)

SCHULZ ET AL.

Examiner

Ramnandan Singh

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 04 January 2005.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-4 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-4 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- ☐ Notice of References Cited (PTO-892)
- ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date March 21, 2005
- ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- ☐ Notice of Informal Patent Application (PTO-152)
- ☐ Other: _____

DETAILED ACTION

1. **Response to Amendment**

Applicant's statement: " Claim 3 is cancelled and has been incorporated into claim 1" on page 4.

Examiner's response---"Currently amended" claim 1 shows that the incorporation of claim 3 into claim 1 is **incomplete**. As a result, the amendment to the claims is not approved.

Response to Arguments

2. Applicant's arguments filed January 04, 2005 have been fully considered but they are not persuasive.

(i) Applicant's argument---"But (Graumann) is utterly silent as to updating of the noise floor parameter. Thus, this limitation is not taught by Graumann" on page 5.

Examiner's response--- Examiner agrees. Further, Applicant is respectfully directed to Section 8 of the Office action wherein the teachings of Reaves et al [WO 9602911 A1] is combined with Graumann to overcome this deficiency.

(ii) Applicant's argument---"Furthermore, Reaves is completely silent as to this limitation (updating the variance) of the claim" on page 5.

Examiner's response--- Examiner respectfully disagrees. In this respect, Applicant is directed to Figs. 2 and 3 of Reaves et al wherein the variance is updated [Pages 10-12].

(iii) Applicant's argument---“It is evident from Reaves that the variance is calculated in the frequency domain from a smoothed frequency band limited energy and is used to detect the beginning and end points of speech” on pages 5-6.

Examiner's response---Examiner disagrees. Applicant is respectfully directed to the statement by Reaves et al “ The variance is calculated as a function of time from smoothed frequency band energy values stored in a shift register” [Reaves et al; Page 3]. In another embodiment, Reaves et al use the variance to detect the beginning and end points of speech. Thus, it is another embodiment of Reaves , and hence it is not so-called “teaching away” by the applicant.

(iv) Applicant's argument---“The teachings of Reaves cannot be properly combined with Graumann because Reaves teaches away and the resulting combination would not work” on page 6.

Examiner's response---In view of the examiner's response provided in section (iii) above, the applicant's argument is irrelevant.

Claim Objections

3 Claim 1 is objected to because of the following informalities: This is because the last line of the claim, “ variance parameter with a predetermined” is an **incomplete** limitation. Clearly, what is “predetermined” is missing.

Appropriate correction is required.

Claim Rejections - 35 USC § 103

4. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

5. Claims 1, 3-4 are rejected under 35 U.S.C. 103(a) as being unpatentable over Graumann [US 6,175,634 B1] in view of Reaves et al [WO 9602911A1].

Regarding claim 1, Graumann teaches the computation of a variance parameter (i.e. **standard deviation of a variance**) based on energy difference using four sample windows shown in Figs. 9A and 8, as an example, to generate four consecutive standard deviation values, SD1 through SD4, wherein the variance is the expected value of the magnitude square of the difference between the statistical variable and its expected value (See Equation (1)) [col. 7, lines 1-31]. Further, Graumann discloses detecting noise or speech, in the event that the variance parameter is less than a predetermined multiple of the energy of the signal within a

most recent one of the sample windows then indicating the presence of noise, and setting a noise level parameter as a function of the energy of the signal within the most recent one of the sample windows, and in the event that the variance parameter is greater than or equal to the predetermined multiple of the energy of the signal within the most recent one of the sample windows then indicating the absence of noise in the most recent sample window [Fig. 14; col. 9, lines 7-21]; and in the event that the noise level parameter exceeds the energy of the signal within the most recent one of the sample windows then setting the noise level parameter to equal the energy of the signal within the most recent one of the sample windows (i.e. **update NPDF (step 705)**) [Figs. 4B, 4C, 5-7; col. 7, line 44 to col. 8, line 59]. It may be noted that this example involving four sample windows equally holds for the case of two sample windows also.

Graumann does not teach expressly updating a variance parameter based on the difference in energy of signal between each of the sample windows.

Reaves et al teach a method of computing a variance in sample Hamming windows shown in Fig. 2 [Pages 10-12; 18-20]. It is nevertheless a teaching to one of ordinary skill in the art to do the same thing with Graumann.

At the time of the invention, it would have been obvious to a person of ordinary skill in the art to apply the method of updating a variance of Reaves et al with

Graumann to speed up the updating process rather than recalculating the quantities A and B [Reaves et al; Pages 11-12].

Regarding claim 3, the combination of Graumann and Reaves et al further teaches the method wherein the step of updating the variance parameter further comprises the steps of: comparing the variance parameter to the difference in the energy of the signal within each of the sample windows and setting the variance parameter to the weighted average of the difference and a previous value of the variance parameter [Graumann; Equation (2)]; and in the event that the variance parameter is greater than the difference then adjusting the variance parameter with a predetermined decay ratio, and in the event that the variance parameter is less than or equal to the difference then adjusting the variance parameter with a predetermined attack ratio [Gruamann; Figs. 17, 18; col. 10, line 65 to col. 12, line 44].

Regarding claim 4, the combination of Graumann and Reaves et al further teaches the method, wherein the step of setting the noise level parameter as a function of the energy of the signal within the most recent one of the sample windows further comprises setting the noise level parameter to the weighted average of the energy of the signal within the most recent one of the sample windows and a previous value of the noise level parameter [Graumann; Equation(2); col. 11, lines 42-53].

6. Claim 2 is rejected under 35 U.S.C. 103(a) as being unpatentable over the combination of Graumann and Reaves et al as applied to claim 1 above.

Regarding claim 2, the combination of Graumann and Reaves et al does not teach expressly discarding two successive ones of the sample windows at start up and for each subsequent first one of the two successive sample windows which exceeds a predetermined maximum energy. However, discarding a few sample windows to reduce noise is well-known in the art.

At the time of the invention, it would have been obvious to a person of ordinary skill in the art to discard any number of sample windows in order to reduce noise subject to circuit, system and design constraints.

Conclusion

7. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of

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the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ramnandan Singh whose telephone number is (571) 272-7529. The examiner can normally be reached on M-TH (8:00-5:30).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Tran Sinh can be reached on (571) 272-7564. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Ramnandan Singh
Examiner
Art Unit 2644



SINH TRAN
SUPERVISORY PATENT EXAMINER